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48,536/59.

PATENT SPECIFICATION

Complete Specification Lodged 6th May, 1959.

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Applicant The Brunswick-Balke-Collender Company.

Actual Inventors Richard J. Lappin, and Robert G. Mohr.

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Classification 45.3.

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Drawing attached.

COMPLETE SPECIFICATION.

"ADJUSTABLE DESK TOP."

Abstract of application open
to public inspection quoting
claim no. was received
on ..8/7/60.. but not retained

The following statement is a full description of this invention, including the best method of performing it known to us:-

This invention relates to a desk and more particularly to an adjustable height desk for supporting a typewriter or the like.

The present invention provides a desk for supporting a typewriter or the like comprising, a supporting leg structure, a top for the desk on which a typewriter or the like may be supported, means mounting the top on the leg structure for up and down movement relative to said leg structure with the top maintained level at all times, torsion bar means for yieldably urging the top upwardly with sufficient force to cause the top to substantially float when supporting a typewriter or the like thereon, and releasable means connected between the top and leg structure operable from a user's position relative to the desk for releasably holding said top in a desired height position.

An object of this invention is to provide a new and improved desk in which the desk top may be easily adjusted to a desired height because of the floating action of the top and may be releasably held in adjusted position by mechanism conveniently located for operation by a user of the desk.

Another object of the invention is to provide a desk for supporting a typewriter or the like comprising a supporting leg structure, a top for the desk on which a typewriter or the like may be supported, means mounting the top on the leg structure for up and down movement relative to said leg structure with the top maintained level at all times, means for yieldably urging the top upwardly with sufficient force to cause the top to substantially float when supporting a typewriter or the like thereon, and means easily operable from a user's position

relative to the desk for releasably holding said top in a desired height position.

A further object of the invention is to provide a desk as defined in the preceding paragraph wherein the top mounting means includes a pair of parallelogram linkages between the top and leg structure, the means yieldably urging the top upwardly includes a pair of torsion bars connected between the top and said linkages and the means for releasably holding the top in a desired position includes a pin fixed to the leg structure, a notched bar movably mounted on the top underside and manually operable linkage connected to the bar.

Further objects and advantages will become apparent from the following detailed description taken in connection with the accompanying drawings in which:

Figure 1 is a perspective view in elevation looking toward the rear of the desk;

Figure 2 is a vertical fragmentary section taken generally along the line 2-2

in Figure 5;

Figure 3 is a view similar to Figure 2 but showing the top in its uppermost

position;

Figure 4 is a plan view of the desk with the desk top broken away;

Figure 5 is a vertical fragmentary section taken generally along the line 5-5 in

Figure 4;

Figure 6 is a perspective view of a part of the mechanism for holding the top in adjusted position with the parts shown disengaged; and

Figure 7 is a fragmentary vertical section on an enlarged scale of the lower end of one desk leg.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail a preferred embodiment of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

As shown in the drawings, the desk comprises a leg structure having a pair of rear legs 1 and 2, and a pair of front legs 3 and 4 with the front and rear legs at a side of the desk formed integrally with connecting parts 5 and 6, respectively. A cross bar 6a extends between the front legs 3 and 4 to rigidly connect the legs together. A panel 6b also extends between the legs 3 and 4 and a support rack 6c is connected between the panel 6b and the rear leg 2. A top 7 for the desk overlies the leg structure and has a downwardly extending skirt 8 extending around the sides and front of the desk which substantially encloses mechanism described hereinafter for enabling height adjustment of the top. The top is provided with a paper storage compartment 9 and has a surface adjacent thereto for supporting a typewriter or the like. The compartment 9 includes a pull-out dictation slab 9a so that dictation may be taken at the desk.

Means are provided for movably supporting the top on the leg structure including mechanism at each side of the desk. These mechanisms are substantially identical and one will be described in detail. This mechanism includes a first tie bracket 10 welded to the upper end of the front leg 4 and a second tie bracket 11 in the form of a generally triangularly shaped plate having a right angle flange 12 at its upper end which is secured to the underside of the desk top 7 by means such as screws 13. A pair of vertically spaced parallel links 14 and 15 extend between said tie brackets. The lower link 14 and upper link 15 are connected to the tie brackets by pivot pins 14a, 14b and 15a, 15b, respectively. The pivot pins 14a, 15a and 14b, 15b are arranged to lie one above the other in all positions of the desk top.

A rigid tubular member 16 is connected between the upper links 15 and

synchronizes the movement of the mechanism at each side of the desk so that the mechanisms move together. This structure mounts the desk top for up and down movement relative to the leg structure with the desk top maintained level in all positions thereof.

Means are provided for urging the top upwardly away from the leg structure to substantially counterbalance the weight of the top 7 and a typewriter or the like supported thereon. This means includes a pair of torsion bars 20 and 21 which extend transversely across the desk beneath the top 7. The torsion bar 20 has an end 22 which engages the underside of the desk top 7 and is held relative thereto by a clip 23 secured to the underside of the desk. An opposite end 24 of the torsion bar 20 passes through an opening 25 in the rigid tubular connection member 16 and terminates in a bent-over part 26 fitting in an opening 27 formed in a plate 28 extending inwardly from the upper top supporting link 15 and attached to the link and the cross member 16. The torsion bar 21 has an end 29 in engagement with the underside of the top 7 and held relative thereto by a fastening clip 30 and has an opposite end 31 extending through an opening 32 in the tubular cross member 16 and terminating in a down-turned part 33 which engages in an opening 34 in a plate 35 extending inwardly from and secured to the adjacent upper top supporting link 15 and the cross member 16.

The torsion bars 20 and 21 act between the upper top supporting links 15, cross member 16 and the top 7 as will be readily apparent from a comparison of Figures 2 and 3. The torsion bars are assembled with a sufficient load so as to render the top freely movable by a user between the limit positions as shown in Figures 2 and 3 with the weight of a typewriter or other device on the top. The loading of the torsion bars is such that the torsion bars are attempting to increase the angle between the desk top 7 and the upper top supporting link 15.

Means are provided for releasably holding the top in any desired position of adjustment and which may be readily operated from the rear of the desk by a user. This means includes similar structure at each side of the desk and the structure at one side thereof will be described. A plate 40 is slidably mounted on the underside of the top 7 by slots 41 formed therein slidable on headed screws 42 extending downwardly from the top underside. A spring 43 is connected between the plate and a pin 44 secured to the top underside to urge the plate rearwardly. The plate has a notched bar 45 extending downwardly therefrom with a plurality of rearwardly facing notches 46. The spring 43 urges this bar 45 rearwardly into engagement with a catch pin which is formed as a continuation of the pivot pin 15a for the front end of the upper top supporting link 15. A brace 47 on the upper top supporting link 15 engages and the end of pin 15a and prevents notched bar 45 from slipping off the end of pin 15a. As noted in comparing Figures 2 and 3, the height adjustment of the top is determined by which of the notches 46 engage the catch pin.

The engagement of the bars 45 with the catch pins is controlled by a control link 50 having a handle 51 at the rear of the desk and which is slidably mounted to the underside of the top 7 by screws 52 and slots 53. The control link 50 at its forward end is pivotally connected by a pin 54 to oppositely extending operating links 55 and 56. The links 55 and 56 are pivotally mounted to the top underside by fasteners 57 and 58, respectively, and the operating links 55 and 56 at their free ends engage the notched bars 45. A rearward pull on the control link 51 pivots the operating links 55 and 56 in a direction to move the notched bars 45 toward the front of the desk against the action of the springs 43 to free the notched bars 45 from the catch pins so that the top may be moved up or down relative to the leg structure. The plates 40 and notched bars 45 are limited in their forward movement by engagement of the headed screws 42 with the ends of the slots 41.

In one embodiment, the top may have a 4 inch range of height adjustment and

this adjustment may be in 1/2 inch increments as provided by adjacent notches 46.

In order to adjust the desk for stability on an unlevel floor one leg has, at its lower end, a height adjustment mechanism as shown in Figure 7. The leg has a rubber foot 60 fitted on a leg cap 61 and the height adjustment mechanism includes a machine screw welded to the leg cap 61 and threadably mounted in the hollow lower end of the leg as shown at 63.

The claims defining the invention are as follows:

1. A desk for supporting a typewriter or the like comprising, a supporting leg structure, a top for the desk on which a typewriter or the like may be supported, means mounting the top on the leg structure for up and down movement relative to said leg structure with the top maintained level at all times, torsion bar means for yieldably urging the top upwardly with sufficient force to cause the top to substantially float when supporting a typewriter or the like thereon, and releasable means connected between the top and leg structure operable from a user's position relative to the desk for releasably holding said top in a desired height position. (6th May, 1959).
2. A desk according to claim 1 wherein the means for mounting the top on the leg structure includes a pair of parallelogram linkages between the top and leg structure with one linkage at each side of the desk and the means for yieldably urging the top upwardly includes a pair of torsion bars connected between the top and the parallelogram linkages. (6th May, 1959).
3. A desk according to claim 1 wherein the means for movably supporting said top on said leg structure includes mechanism at each side of the desk, each of said mechanisms including a first tie bracket fixed to the leg structure, a second tie bracket fixed to the top underside adjacent its rear, and a pair of vertically spaced parallel pivotal links extending between said tie brackets whereby the top may move up and down while maintaining a level position, a rigid member extending transversely between the upper links of said pairs of links and the means for urging said top upwardly away from said leg structure includes a pair of torsion bars, each bar having an end engageable with the top underside at one side thereof and extending laterally in opposite directions relative to each other to the other side of the top and engageable adjacent their other end to the rigid member and the upper of said parallel links at said side. (6th May, 1959).
4. A desk according to claim 1, wherein said last named means includes a pin fixed to the leg structure, a notched bar movably mounted on the top underside and engageable with the pin to hold the top relative to the leg structure, and manually operable linkage connected to the rack bar for moving the rack bar away from the pin to permit height adjustment of the top. (6th May, 1959).
5. A desk according to claim 1 wherein said leg structure includes a pair of spaced apart front legs, said top overlies said leg structure, said means for movably supporting said top on said leg structure includes parallelogram linkage mechanism at each side of the desk, said yieldable means urges said top upwardly away from said leg structure with sufficient force to substantially counter-balance the weight of a typewriter, and said releasable means is operable manually from the rear of the desk for holding the top in an upper or lower position or one of a

plurality of positions therebetween, said releasable means including at each side of the desk a catch pin fixed to the front leg, a slotted plate slidably mounted on pins extending downwardly from the top underside, a bar having a plurality of rearwardly facing vertically spaced notches extending downwardly from the plate, a spring for urging the plate and bar rearwardly to engage a notch with the catch pin, and an operating link extending inwardly from the rack bar and pivoted intermediate its ends to the top, and a manually engageable control link mounted on the top underside for sliding movement in a front to rear direction connected to said operating links and having an end adjacent the rear of the top, whereby a rearward pull on the control link shifts the bars forwardly to free the catch pins and permit height adjustment of the top. (6th May, 1959).

6. A desk structure having an adjustable height top to facilitate use of a typewriter or the like supported thereby comprising, a leg structure including a pair of spaced apart front legs, a top overlying said leg structure, means for movably supporting said top on said leg structure including mechanism at each side of the desk, each of said mechanisms including a first tie bracket fixed to one of the front legs near its top, a second tie bracket fixed to the top underside adjacent its rear, and a pair of vertically spaced pivotal parallel links extending between said tie brackets whereby the top may move up and down while maintaining a level position, a rigid member extending transversely between the upper of said parallel links, means for urging said top upwardly away from said leg structure with a sufficient force to cause the top to substantially float with a typewriter or the like supported thereon, including a pair of torsion bars, each bar having an end engageable with the top underside at one side thereof and extending laterally in opposite directions relative to each other to the other side of the top and engageable adjacent their other end to the rigid member and the upper of said parallel links at said side, and means operable manually from the rear of the desk for holding the top in an upper or lower position or one of a plurality of positions therebetween including at each side of the desk, a catch pin fixed relative to the front leg and extending inwardly therefrom, a plate slidably mounted on the top underside, a bar having a plurality of rearwardly facing vertically spaced notches extending downwardly from the plate, a spring for urging the plate and bar rearwardly to engage a notch with the catch pin, and an operating link extending inwardly from the bar and pivoted intermediate its ends to the top, and a manually engageable control link mounted on the top underside for sliding movement in a front to rear direction connected to said operating links and having an end adjacent the rear of the top, whereby a rearward pull on the control link shifts the bars forwardly to free the catch pins and permit height adjustment of the top. (6th May, 1959).

7. A desk structure substantially as herein described with particular reference to the embodiment shown in the accompanying drawings. (6th May, 1959).

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References:

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108,370	3773/38	45.3; 45.4; 54.4
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